Index to Volume 25

How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, published in November, 1939 and 1940, and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 25 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under twelve section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books and Bibliographies; 4, Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12 (Changed to Section 0); and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into seven parts entitled Papers, Letters to the Editor, Abstracts, Subtitles, Patents, Book Reviews, and Errata. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under this heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents.

The reader or his librarian should go over the list of errata classified under 0.1, and either make the indicated corrections in the original papers or enter a note beside the title of the original paper—"See Erratum, Vol. XX, p. XXX."

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the Subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 25 these references will be found on pages 164, 342, 578, 802, 1022, 1206.

Classification of Subjects

0. General, Unclassified
- 0.1 Errata

1. Acoustical Society of America
- 1.1 General, Unclassified
- 1.2 Constitution and By-Laws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists

2. Architectural Acoustics
- 2.1 General, Unclassified
- 2.2 Auditorium Design. (See also 7.6.)
- 2.3 Studies of Existing Auditoria
- 2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)
- 2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)
- 2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports
- 2.12 Damping of Panels

3. Books and Bibliographies
- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents

4. The Ear and Hearing
- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization
- 4.4 Deafness. (See also 5.5.)
- 4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)
- 4.6 Loudness, Threshold Determinations
- 4.7 Masking. (See also 5.5.)
- 4.8 Phase Effects. (See also 4.3.)
- 4.9 Pitch
- 4.10 Subjective Tones
- 4.11 Theories of Hearing
- 4.12 Timbre
- 4.13 Ear Acoustical Impedance

5. Applied Acoustics, Instruments and Apparatus

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic and Mechanical Impedance Measurement. (See also 11.4.)
5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs. (See also 5.15.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.5.1 Broadcasting
5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones, Vibration Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18 and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephone, Telephone Receivers
5.18 Transducing Principles and Structures. Thermophones. (See also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t.)
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 2.11 and 5.9.)

See also
2.8 Reverberation Measuring Instruments
4.5 Instruments Relating to Hearing
9.6 Instruments Relating to Speech and Singing
10.3 Ultrasonic Instruments
13.11, 13.11n, and 13.11t. Instruments Relating to Underwater Sound

6. Musical Instruments and Music

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas

7. Noise

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators. (See also 13.9 Noise in Water. Ship Noise. Biological Noises.)

8. Standards

8.1 General, Unclassified

9. Speech and Singing

9.1 General, Unclassified
9.2 Anatomy and Physiology of the Speech Organs
9.3 Articulation Testing. Intelligibility. Defective Speech
9.4 Frequency of Occurrence of Speech Sounds
9.5 Frequency Analyses of Speech Sounds
9.6 Instruments Relating to Speech and Singing
9.7 Speech Pitch
9.8 Speech Power. Singing Voice Power
9.9 Vibrato
9.10 Phonetics

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

11. Waves and Vibrations (see also 13)

11.1 General, Unclassified
11.2 Diffraction. Interference. Scattering. Reflection. Echoes. Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)
11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)
11.4 Radiation from Vibrating Objects. Acoustic Impedance. Mechanical Impedance. (See also 5.3 and 13.7.)
11.5 Sounds of Finite Amplitude. Distortion. (See also 13.10.)
11.6 Sound in Tubes
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
11.7 Theory of Waves and Vibrating Systems. (See also 5.4.)
11.8 Biological Effects of Vibration and Sound. (See also 10.9.)

12. (Changed to Section 0)

13. Underwater Sound

13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water

13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation
13.9 Noise in Water. Ship Noise. Biological Noises
13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5.)
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

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Voice identification of speakers. I. Pollack, J. M. Pickett, and W. H. Sumby. **25**: 823—1953

4.2 Anatomy and Physiology of the Ear

PAPERS

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Description of some mechanical properties of the organ of Corti. G. v. Békésy. **25**: 770—1953
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SUBTITLES

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4.3 Binaural Hearing. Localization

PAPERS

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Some experiments on the recognition of speech, with one and with two ears. E. Colin Cherry. **25**: 975—1953

ABSTRACTS

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4.4 Deafness (see also 5.5)

PAPERS

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ABSTRACTS

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4.5 Instruments Relating to Hearing, and for the Testing of Hearing (see also 5.5)

PAPERS

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ABSTRACTS
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PATENTS
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Audiphone. Jarvis M. Hazard. **25**: 350—1953
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Cord support for hearing aids. Lillian D. Cates. **25**: 351—1953
Earpiece. Elmore A. Kindel. **25**: 169—1953
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4.6 Loudness, Threshold Determinations
ABSTRACTS
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Audibility of intense ultrasonic sound. Bruce H. Deatherage, Lloyd A. Jeffress, and Hugh C. Blodgett. **25**: 190—1953
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Temporal fluctuations of the masked auditory threshold. J. C. R. Licklider. **25**: 190—1953
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4.7 Masking (see also 5.5)
PAPERS
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ABSTRACTS
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Pitch shifts as they relate to hearing losses caused by simultaneous masking. J. C. Webster. **25**: 833—1953

4.8 Phase Effects (see also 4.3)
ABSTRACTS
Masking of tones by white noise as a function of interarual time or phase displacements. II. Lloyd A. Jeffress, Hugh C. Blodgett, and Bruce H. Deatherage. **25**: 190—1953
Pitch shifts as they relate to hearing losses caused by simultaneous masking. J. C. Webster. **25**: 833—1953

4.9 Pitch
PAPERS
Information of elementary auditory displays. II. Irwin Pollack. **25**: 765—1953
On the DL for frequency. Walter A. Rosenblith and Kenneth N. Stevens. **25**: 980—1953
ABSTRACTS
Information and absolute pitch. W. D. Ward. **25**: 833—1953
Pitch and intensity: additional data. James F. Nickerson. **25**: 190—1953

4.10 Subjective Tones
PAPERS
Observation of a further Tartini pitch resulting from a physical sinusoid added to a Tartini pitch. Max F. Meyer. **25**: 1195—1953

4.11 Theories of Hearing
PAPERS
Description of some mechanical properties of the organ of Corti. G. v. Bekesy. **25**: 770—1953
Review of recent mathematical theories of cochlear dynamics. Jozef Zwislocki. **25**: 743—1953
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ABSTRACTS
Wave motion in the cochlea resulting from bone conduction. Jozef Zwislocki. **25**: 823—1953

4.13 Ear Acoustical Impedance
LETTERS TO THE EDITOR
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5. Applied Acoustics, Instruments and Apparatus

5.1 General, Unclassified
PAPERS
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Electronic sound absorber. Harry F. Olson and Everett G. May. **25**: 1103—1953
Equivalent network representations for solid and mercury delay lines. S. Dairiki, T. E. Lawrence, and R. A. Mapleton. **25**: 841—1953
Field meter for sound velocity measurements. Robert C. McLoughlin and James R. Chiles, Jr. **25**: 732—1953
Measurements on nonreciprocity in an electromechanical system. L. J. Black and H. J. Scott. **25**: 1137—1953
Tone burst generator. Kerim Onder. **25**: 1154—1953
Transformer couplings for equivalent network synthesis. Benjamin B. Bauer. **25**: 837—1953
Vibrating plate viscometer. J. G. Woodward. **25**: 147—1953
LETTERS TO THE EDITOR
Acoustic gyrator. Winston E. Kock. **25**: 575—1953
Auxiliary mechanical sound sources for obstacle perception by audition. V. Twersky. **25**: 156—1953
ABSTRACTS
Variable audiofrequency inductor. R. E. Allison. **25**: 182—1953
SUBTITLES
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PATENTS
Audible indicating measuring apparatus. John V. Hart. **25**: 585—1953
Battery-operated sound signal. Anthony Merola. **25**: 1028—1953
Bird calling device. Howard E. McMahon. **25**: 585—1953
Device for measuring small longitudinal changes. Nils Bernhard Hast and Sven Gunnar Hast. **25**: 351—1953
Force measuring systems employing piezocapacitors. Hans E. Hollmann. **25**: 809—1953
Roller type sonic generator. Gordon C. Seavey and Caperton B. Horsley. **25**: 351—1953

5.2 Amplifiers and Attenuators
ABSTRACTS
Accurate, inexpensive, electronic multiplier with wide dynamic range. Robert L. Mills. **25**: 820—1953
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PATENTS
Voice-operated constant-level amplifier. Edmund H. Ross. **25**: 1028—1953
BOOK REVIEWS
Amplifiers. G. A. Briggs and H. H. Garner. (Reviewed by Harry F. Olson). **25**: 163—1953
5.3 Acoustic and Mechanical Impedance Measurement (see also 11.4)
PAPERS
Acoustic wave guide. I. An apparatus for the measurement of acoustic impedance using plane waves and higher order mode waves in tubes. E. A. G. Shaw. **25**: 224—1953
Acoustic wave guide. II. Some specific normal acoustic impedance measurements of typical porous surfaces with respect to normally and obliquely incident waves. E. A. G. Shaw. **25**: 231—1953
Analogous acoustical impedance for discontinuities and constrictions of circular cross section. F. C. Karal. **25**: 327—1953
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LETTERS TO THE EDITOR
Note on acoustic impedance. Hawley O. Taylor. **25**: 575—1953
ABSTRACTS
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Pulse tube for the measurement of acoustic impedance. William S. Cramer. **25**: 186—1953
5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs (see also 5.15)
PAPERS
Compact, versatile filter-type sound analyzer. H. H. Scott and D. von Recklinghausen. **25**: 727—1953
Equivalent network representations for solid and mercury delay lines. S. Dairiki, T. E. Lawrence, and R. A. Mapleton. **25**: 841—1953
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PATENTS
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Electromechanical filter. Walter van B. Roberts. **25**: 1028—1953
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System for analyzing seismographic records. James E. Hawkins. **25**: 809—1953
Magnetostriction device. Leslie L. Burns, Jr. **25**: 585—1953
Magnetostrictive four-pole. Heinz Bloch. **25**: 352—1953
Mechanical filter. Leslie L. Burns, Jr., and Walter van B. Roberts. **25**: 351—1953
Vibrating reed structure. Marion R. Winkler. **25**: 585—1953
BOOK REVIEWS
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5.5.1 Broadcasting
LETTERS TO THE EDITOR
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ABSTRACTS
Cadillac mobile television unit—Inauguration, 1953. L. Weiland. **25**: 826—1953
CBS Television city audio and communication facilities. H. A. Chinn, R. B. Monroe, and C. A. Palmquist. **25**: 825—1953
Gun-shot reinforcers and synthesizers. J. L. Hathaway and R. E. Lafferty. **25**: 835—1953
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
PAPERS
Scale for specifying frequency levels in octaves and semitones. Parry Moon. **25**: 506—1953
LETTERS TO THE EDITOR
Estimating the extent of frequency modulation by means of a stroboscope. James F. Nickerson. **25**: 796—1953
On numbering frequency bands. Robert W. Young. **25**: 1201—1953
PATENTS
Apparatus for manufacture of piezoelectric elements. Constantin Chilowsky. **25**: 1028—1953
Audiofrequency recorder. Verner E. Suomi. **25**: 585—1953
Temperature control of electro-vibratory systems. **25**: 585—1953
BOOK REVIEWS
Schwingende Kristalle. L. Bergmann. (Reviewed by Floyd A. Firestone). **25**: 162—1953
Table relating frequency to cents. Robert W. Young. (Reviewed by Daniel W. Martin). **25**: 801—1953
5.8 Loudspeakers, Horns (see also 5.13, 5.17, and 5.18)
PAPERS
Investigation of the air chamber of horn type loudspeakers. Bob H. Smith **25**: 305—1953
On the vibration of mass-loaded membranes. E. T. Kornhauser and D. Mintzer. **25**: 903—1953
Optimum directivity patterns for linear point arrays. R. L. Prichard. **25**: 879—1953
ABSTRACTS
Compound diffraction projector. L. S. Hoodwin. **25**: 835—1953
Design of direct-radiator loudspeaker systems. Leo L. Beranek. **25**: 825—1953
Design techniques for a high frequency transducer with a conical wide-beam directivity pattern. A. L. Lane. **25**: 181—1953
Experimental study of the hydrodynamic flow. W. C. Cady. **25**: 189—1953
Investigation of the air chamber of horn type loudspeakers. Bob H. Smith. **25**: 181—1953
PATENTS
Acoustic diaphragm with flexible rim portion and rigid body portion. Joseph B. Brennan. **25**: 810—1953
Acoustical cloth. John A. MacIntyre. **25**: 586—1953
Audio-power switching system for radio-television receiver combinations. Charles E. Torsch. **25**: 1029—1953
Diaphragm for electrostatic loud-speakers. Theodore Lindenberg and Grant T. Loughlin. **25**: 586—1953
Electrostatic loud-speaker. Arthur A. Janszen. **25**: 1029—1953
Frequency receiving bell with an elastically yieldable diaphragm extending across its mouth. Warren S. Eaton. **25**: 810—1953
Loud-speaker. Glenn N. Howatt. **25**: 352—1953
Loud-speaker structure. Leon Stewart Doubt. **25**: 1029—1953
Loud-speaker with a tapered horn coupled to the speaker diaphragm. Frank Massa. **25**: 352—1953

Magnetic unit with magnetically positioned pole piece for loud-speakers. Reginald Denison Charlesworth. **25**: 169—1953
Magnetohydraulic motor for translating electrical energy into sound energy. Victor T. Pare. **25**: 586—1953
Magnet pole structure. Paul Gustavus Adolphus Helmuth Voigt. **25**: 586—1953
Method of making acoustic diaphragms. Frank B. Lenz. **25**: 352—1953
Mounting of twin acoustic diaphragm assemblies. Joel Julie. **25**: 1029—1953
Moving coil loud-speaker. Paul Gustavus Adolphus Helmuth Voigt. **25**: 586—1953
Portable loud-speaker heater attachment for drive-in theaters. Herman M. Melzer. **25**: 586—1953
Sound reproduction apparatus. Alfred James Corke. **25**: 810—1953
Speaker construction. John A. Proctor. **25**: 810—1953
Transducer. Lawrence M. Heineman. **25**: 352—1953

5.9 Microphones, Vibration Microphones, Microphone Calibration Equipment and Techniques (see also 5.18 and 13.11t)

PAPERS
Acoustic lens as a directional microphone. Malcolm A. Clark. **25**: 1152—1953
Anomalous transient response of a crystal pick-up. Pierre M. Honnell. **25**: 570—1953
Calibration and use of probe-tube microphones. Robert W. Benson. **25**: 128—1953
Electromechanical pick-up calibration by the interferometer method. Charles A. Ziegler. **25**: 135—1953
Miniature microphone for transistorized amplifiers. B. B. Bauer. **25**: 867—1953
Miniature piezoelectric microphone. John Medill. **25**: 864—1953
On the vibration of mass-loaded membranes. E. T. Kornhauser and D. Mintzer. **25**: 903—1953
Simple calibration technique for low sensitivity transducers. William J. Galloway. **25**: 1127—1953
Transformer couplings for equivalent network synthesis. Benjamin B. Bauer. **25**: 837—1953

LETTERS TO THE EDITOR
Electrostatic velocity microphone. Albert D. Frost. **25**: 1198—1953
Temperature invariant impedance point in the frequency response of circular barium titanate transducers. T. F. Hueter. **25**: 152—1953
Transient response of accelerometers. Thomas A. Perls. **25**: 1199—1953

ABSTRACTS
Acoustic lens as a directional microphone. Malcolm A. Clark. **25**: 829—1953
Calculated pressure response of condenser microphones from measured electrical impedance data. Bernard D. Simmons and Fernando Biagi. **25**: 186—1953
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Design techniques for a high frequency transducer with a conical wide-beam directivity pattern. A. L. Lane. **25**: 181—1953
Directional acoustic receiver as a space filter. Robert Hills, Jr. **25**: 828—1953
Double-ended vibrators for comparison calibration of accelerometers. Charles F. Rice, Jr., Earle Jones, and Seymour Edelman. **25**: 186—1953
Electronic sound absorber. Harry F. Olson and Everett G. May. **25**: 829—1953
Interaction of a sound wave with a point-to-plane corona discharge. I. Dyer, B. W. Blum, and Uno Ingard. **25**: 829—1953
Large area condenser type of transducer. T. Aamodt and F. K. Harvey. **25**: 825—1953
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Miniature microphone for transistorized amplifiers. B. B. Bauer. **25**: 825—1953
Miniature piezoelectric microphone. J. Medill. **25**: 825—1953
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Plane wave cavities for pressure response of condenser microphone above 10 kc. Fernando Biagi and Bernard D. Simmons. **25**: 185—1953
System for the rapid evaluation of the polar characteristics of microphones. R. M. Carrell. **25**: 821—1953
Uniaxial microphone. Harry F. Olson, John Preston, and John C. Bleazey. **25**: 829—1953
Use of the reverberation chamber for random field measurements. Howard C. Hardy. **25**: 821—1953

SUBTITLES
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Relative advantages of impedance and mobility analogies. Benjamin B. Bauer. **25**: 837—1953

PATENTS
Acoustic manometer. Andre Coyne, Jean Bellier, and Jean Marion. **25**: 1029—1953
Combined hand microphone and control means. Anthony C. DeNapoli, Jr. **25**: 587—1953
Device for vibration testing. Jan Severs. **25**: 352—1953
Granule type acoustic transducer. Dennis Edward Skeleton. **25**: 587—1953
Microphone mount. Michael Rettinger. **25**: 353—1953
Microphone windshield. William Donald Cragg and Michael Lawrence Gayford. **25**: 811—1953
Noise-canceling microphone. Robert K. Duncan. **25**: 353—1953
Ribbon-type microphone diaphragm. Helmuth Eckardt. **25**: 353—1953
Semiconductor transducer. Harold C. Montgomery. **25**: 1029—1953
Suspension system for dynamic microphones. Harry F. Olson and John Preston. **25**: 812—1953
Telephone apparatus. Sten D. Vigren and Gustaf E. Gustafsson. **25**: 353—1953
Telephone transmitter. Herbert W. Bryant. **25**: 353—1953
Unidirectional microphone. Alpha M. Wiggins. **25**: 811—1953

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting

PAPERS
Piezoelectric well hydrophones. C. B. Vogel. **25**: 711—1953
Sound waves observed in mud-filled well after surface dynamite charges. J. R. Ording and V. L. Redding. **25**: 719—1953

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Auxiliary mechanical sound sources for obstacle perception by audition. V. Twersky. **25**: 156—1953

ABSTRACTS
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Piezoelectric well hydrophones. C. B. Vogel. **25**: 181—1953
Some observations on traveling waves from explosive sources. P. L. Lawrence and M. B. Dobrin. **25**: 180—1953
Some relations between seismology and acoustics. Hugo Benioff. **25**: 180—1953
Sound waves observed in a mud-filled well after surface dynamite charges. J. R. Ording and V. L. Redding. **25**: 180—1953

PATENTS
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Caliper device. Ralph W. Goble and Gordon Jackson. 25: 588—1953
Double coil cable geophone. Kenneth W. McLoad. 25: 811—1953
Electrostatic seismometer. Glen Peterson. 25: 588—1953
Generation and transmission of sound pulses. Gordon C. Seavey. 25: 812—1953
Low frequency vibrational pick-up. Allen A. Chernosky. 25: 811—1953
Method and apparatus for measuring the cross-sectional area of well bores by supersonic waves. Ralph W. Goble. 25: 587—1953
Method for determining subsurface geological structure by seismic surveying employing refraction shooting. Albert J. Barthelmes. 25: 588—1953
Method for geophysical exploration. Carl A. Heiland and Matthew T. Murray. 25: 811—1953
Method of seismic surveying. Robert P. Green. 25: 587—1953
Seismic exploration method. Ralph W. Mann. 25: 812—1953
Seismic surveying. William H. Mayne. 25: 587—1953
Seismic surveying. Josephus O. Parr, Jr. 25: 587—1953
Seismic-wave generation. Daniel Silverman. 25: 812—1953
Seismometer. Raymond G. Piety and Marion E. Thomas. 25: 587—1953
Sound ranging computer. Ralph L. Dunn. 25: 353—1953

5.11 Oscillators, Electrical and Mechanical

PATENTS
Electromagnetically operated signal producing resonator device. Russell A. Gougeon. 25: 1030—1953
Vibrating reed controlled oscillator. Marion R. Winkler. 25: 588—1953

5.13 Public Address Systems and Sound Picture Installations

ABSTRACTS
Selective compression of speech sounds. Caldwell P. Smith. 25: 832—1953

PATENTS
Electronically controlled advertising device. Basil Edgar Templeman and Henry Milton. 25: 1030—1953
Sound control system. Henry Schwartzberg. 25: 1030—1953

5.14 Rayleigh Disks

LETTERS TO THE EDITOR
Initial-throw method of operation of a Rayleigh disk. John L. Simonds and Ralph Heller. 25: 157—1953

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement (see also 5.4)

PAPERS
Compact, versatile filter-type sound analyzer. H. H. Scott and D. von Recklinghausen. 25: 727—1953
On the forces due to acoustic wave motion in a viscous medium and their use in the measurement of acoustic intensity. F. E. Borgnis. 25: 546—1953
On the measurement of power radiated from an acoustic source. Walter G. Cady and Curtis E. Gittings. 25: 892—1953

ABSTRACTS
Method for measuring noise of ventilating fans. J. L. Reynolds, K. E. Wilson, Jr., and L. L. Beranek. 25: 185—1953
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On the forces due to acoustic wave motion in a viscous medium and their use in the measurement of acoustic intensity. F. E. Borgnis. 25: 1202—1953

5.16 Sound Recording and Reproducing. General

ABSTRACTS
Power requirements for home music systems. R. H. Tanner. 25: 825—1953

PATENTS
Combination photographic and magnetic sound film picture projector. Earl E. Masterson. 25: 353—1953
Dictating machine transcribing apparatus with extension arm. F. J. Fox and Harry A. Williams. 25: 170—1953
Dictating machine with combined hand microphone and control means. Anthony C. DeNapoli, Jr. 25: 354—1953
Means for engraving sound tracks on a support and reproducing sounds by scanning said tracks. Gaston Chancenotte. 25: 169—1953
Mechanism for reproducing recorded sounds in toys. 25: 1030—1953
Nontorsional stylus. Donald J. Baker. 25: 1030—1953
Sonic teacher. Lloyd T. Frost. 25: 588—1953
Sound for figures or puppets. Mathew B. Gruber. 25: 1030—1953
Tape and disk recording and reproducing device. Marvin Camras. 25: 588—1953

BOOK REVIEWS
Recording and reproduction of sound. Oliver Read. (Reviewed by Harry F. Olson). 25: 162—1953

5.16d Disk Recording (including cutting and embossing)

PAPERS
Distortion in phonograph reproduction. H. E. Roys. 25: 1140—1953
Measurement of the lateral mechanical impedance of phonograph pick-ups. J. G. Woodward and J. B. Halter. 25: 302—1953

ABSTRACTS
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Dual-stylus ceramic phonograph pickup development. H. W. Koren, H. A. Pearson, H. Klingener, and R. W. Sabol. 25: 825—1953
Measurement of the lateral mechanical impedance of phonograph pick-ups. J. G. Woodward and J. B. Halter. 25: 829—1953
Noise level and mechanical stresses in plastic sound records. Ernest A. Keller. 25: 820—1953
Stereophonic effects in the reproduction of music from disk records. Charles D. Lindridge. 25: 825—1953

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Acoustically filtered phonographic reproducer. John Hornbostel. 25: 170—1953
Combined electromagnetic piezoelectric phonograph translating device. Alfred Houghton Esty and Joseph Alvin Dinsmore. 25: 354—1953
Continuously playing phonograph. Chester M. Sinnett and Herbert Belar. 25: 1031—1953
Crystal cutter driving circuit. Lawrence V. Wells. 25: 170—1953
Crystal pick-up. Robert H. Dreisbach. 25: 172—1953
Disk type phonograph apparatus. Elliott H. Kahn, Melvin I. Budka and Harold U. Friedman. 25: 813—1953
Dual stylus phonograph pickup. Robert H. Dreisbach. 25: 1032—1953
Dual stylus phonograph pick-up. David J. Munroe. 25: 590—1953
Dual stylus phonograph pick-up. John A. Tourtellot. 25: 171—1953
Dual stylus phonograph pick-up for multispeed record players. Carroll R. Miner and Edward J. Zikmund. 25: 589—1953
Electrical phonograph transducer with multiple styli. Belford C. Angle, Maurice M. Palo and Paul Vincent Kelly. 25: 590—1953

Electrical sound recording, reproducing, and like apparatus. Adrian Francis Sykes. **25:** 592—1953
Electrodynamic pickup. Donald F. Balmer. **25:** 170—1953
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Electronic phonograph pick-up. Earl E. Masterson. **25:** 173—1953
Induction heating of recording styli. Henry F. Schoemehl and Harry D. Ward. **25:** 814—1953
Induction heating of recording styli. Lawrence R. Shardlow. **25:** 813—1953
Instantaneous recording phonographic disks. George M. Sutheim. **25:** 813—1953
Magnetic phonograph pick-up head with two pairs of pole pieces. Henry H. Bruderlin. **25:** 589—1953
Magnetic pickup having multistyli. Maximilian Weil. **25:** 355—1953
Magnetic sound reproducer having removable stylus assembly. Norman C. Pickering. **25:** 171—1953
Magnetic sound reproducer having two styli. Norman C. Pickering. **25:** 354—1953
Manufacture of phonograph and like sound records. Roberto Columbo. **25:** 1031—1953
Method of manufacture of phonographic disks. Albert B. St. Hilaire. **25:** 173—1953
Molded phonograph record containing vinyl chloride-vinyl acetate copolymer and a resinous extract of pinewood. Clinton L. Parker. **25:** 172—1953
Moving-coil sound recording head. Arnold R. Sugden. **25:** 356—1953
Multispeed record player with automatic tone arm weight compensation. Berne N. Fisher. **25:** 813—1953
Phonograph. Kenneth L. Bunyard. **25:** 590—1953
Phonograph. Benjamin R. Carson. **25:** 813—1953
Phonograph. Benjamin R. Carson and Knut J. Magnusson. **25:** 170—1953
Phonograph. David C. Rockola. **25:** 812—1953
Phonograph. Ronald J. Rockwell. **25:** 813—1953
Phonograph adapter for long playing records. Peter C. Goldmark and Carl H. Youngquist. **25:** 1031—1953
Phonograph change-speed mechanism. John H. Sharp. **25:** 1030—1953
Phonograph having speaker pick-up unit. Jesse J. Warner. **25:** 173—1953
Phonograph mechanism. Carl D. Gahagan. **25:** 172—1953
Phonograph needle. Frederick C. Holtz, Jr. **25:** 172—1953
Phonograph needle. William H. Hutter. **25:** 171—1953
Phonograph needle. William H. Hutter. **25:** 172—1953
Phonograph needle. Wesley E. Kidd and Robert L. Metzenberg. **25:** 590—1953
Phonograph needle or stylus. Elliott H. Kahn. **25:** 591—1953
Phonograph pick-up. Arthur L. Ketchum. **25:** 172—1953
Phonograph pick-up and mechanical motion converting system therefor. Robert H. Driesbach. **25:** 589—1953
Phonograph pick-up arm and mounting. Norman F. Martin and Arthur L. Knox, Sr. **25:** 591—1953
Phonograph pickup having a quadrilateral crystal with only one corner free to flex. Cleon D. O'Neal. **25:** 354—1953
Phonograph pick-up mounting. Carroll R. Miner. **25:** 589—1953
Phonograph record cutting mechanism. Arthur B. Rudenauer. **25:** 355—1953
Phonograph recorder and reproducer. Charles W. Dann and Richard M. Somers. **25:** 171—1953
Phonograph tone arm. Richard S. Cranmer. **25:** 172—1953
Phonograph tone arm. Hermann E. F. C. Lingenbrink. **25:** 813—1953
Phonograph tone-arm actuator. Thomas F. Hannigan. **25:** 172—1953
Phonograph tone arm positioner. Wilhelmus Lambertus Leonardus Vivie. **25:** 356—1953
Phonograph turntable drive. Bert Williamson and Ben Hunsaker. **25:** 172—1953
Phonographic record disk. Alexander Lissiansky. **25:** 589—1953
Pickup head using torsional mount for armatures. Donald J. Baker. **25:** 354—1953
Pick-up head with removable armature and stylus assembly. Donald J. Baker. **25:** 591—1953
Protection arrangement for the reproduction needle in pickups. Anders Johan Ansar. **25:** 354—1953
Reconditioning of phonographic records. Frederick G. Kelly. **25:** 589—1953
Record speed adapter for phonographs. Arthur H. Thompson. **25:** 589—1953
Recording and reproducing tone arm attachment. Valentin Morales. **25:** 172—1953
Recording head feeding device. Fred Van Eps. **25:** 172—1953
Reprocessing phonograph record disks. Donald F. Balmer. **25:** 170—1953
Reproducing device having link means for producing high compliance in the direction of the stylus drag. Ray F. Corbett. **25:** 171—1953
Sound record disk. William Rabkin. **25:** 1030—1953
Sound record drive. William K. Rieber. **25:** 589—1953
Sound recorder with sound-controlled stylus feed. George K. Graham. **25:** 1031—1953
Sound recording and reproducing machine. Gerard A. Harrington. **25:** 588—1953
Sound recording and reproducing machine. Frank L. Moore. **25:** 1031—1953
Sound-reproducing apparatus. John G. Kurzen, Jr. **25:** 813—1953
Sound reproducing stylus. Jean Robert Frederick. **25:** 813—1953
Speed adjustment for phonograph turntables. Colin B. Dale. **25:** 590—1953
Spiral and eccentric groove cutter for phonograph records and the like. Frank J. Kovach. **25:** 173—1953
Stylus construction. Frederick Franz. **25:** 171—1953
Swingable arm for holding a sound pick-up stylus. Ronald J. Rockwell. **25:** 171—1953
Tone arm. Lionel B. Cornwell. **25:** 171—1953
Tone arm. Robert S. John. **25:** 170—1953
Tone arm. Maurice M. Palo and Ford William Schmid. **25:** 355—1953
Transducer stylus and holder. Creed M. Chorpening and Lester E. Hadlock. **25:** 173—1953
Two-sided pickup and stylus therefor. Benjamin B. Bauer. **25:** 1031—1953
Two-speed friction drive transmission for phonograph turntables. **25:** 355—1953

5.16f Film Recording (by photographic means)

PAPERS

Electric-optic sound-on-film modulator. Robert O'B. Carpenter. **25:** 1145—1953

ABSTRACTS

Electro-optic sound-on-film modulator. Robert O'B. Carpenter. **25:** 825—1953

PATENTS

Light transmission mechanism. John S. Powers and Walter A. Lotz. **25:** 593—1953
Portable sound film recorder. Milford Edwin Collins. **25:** 592—1953
Recording and reproducing of sound. August Karolus, Erna Hamburger, and André Henry. **25:** 593—1953

Sound recording and reproduction. Gustav Bergson. **25:** 814—1953
Sound reproducing method and system. Clarence W. Hansell. **25:** 592—1953
Sound reproduction apparatus. Ferenz H. Fodor. **25:** 814—1953
Wide range sound film reproducing system. Walter J. Albersheim. **25:** 1032—1953

5.16m Magnetic Recording

PATENTS
Abrasion-resistant magnetic recording tape. Ambrose F. Schmelzle and Esther E. Eastwold. **25:** 356—1953
Apparatus for demagnetizing magnetic recording-reproducing heads. Semi J. Begun. **25:** 174—1953
Automatic sound reproducer. August B. Sack and Maurice Kessman. **25:** 174—1953
Biasing system for magnetic recorders. Lawrence H. Connell. **25:** 174—1953
Control system for magnetic recorders. Marion S. Danisch. **25:** 1032—1953
Control system for phonographs of the combined recording-reproducing type. Richard M. Somers. **25:** 356—1953
Cylindrical contact magnetic head. John Presper Eckert, Jr., and Leon Robert Mock. **25:** 594—1953
Data storage apparatus. John M. Coombs and Charles B. Tompkins. **25:** 1033—1953
Device for duplicating magnetic recordings by re-recording processes. Semi Joseph Begun. **25:** 174—1953
Device for increasing the effectiveness of the transducing field of a magnetic head. Marvin Camras. **25:** 593—1953
Driving and scanning mechanism for magnetic tape handling equipment. Chester C. Pond. **25:** 594—1953
Electromagnetic sound recorder and reproducer. Leon Thurm. **25:** 356—1953
Erase head for use with commercial alternating current or equivalent. Semi Joseph Begun. **25:** 175—1953
Erasing magnet assembly for magnetic recording and reproducing instruments. Edmund Barany and Melvin Sackter. **25:** 594—1953
Frequency analyzer system. Harry R. Foster and Elmo E. Crump. **25:** 1032—1953
Indicator and stop for magnetic wire recorders. Herman Nygaard. **25:** 593—1953
Magazine for magnetic wire recorders. Herman Nygaard. **25:** 173—1953
Magnetic record detector. Eugene Peterson. **25:** 356—1953
Magnetic record editing device. Olin Gunby. **25:** 357—1953
Magnetic record volume control. Joseph T. Wissmann. **25:** 357—1953
Magnetic recorder. Robert Gray and Robert Ellis. **25:** 594—1953
Magnetic recorder. James B. Shickel. **25:** 594—1953
Magnetic recorder. Theodore D. Thad. **25:** 593—1953
Magnetic recorder with pressure shoe for record members. Marvin Camras. **25:** 174—1953
Magnetic recording and reproducing. Alfred L. W. Williams. **25:** 356—1953
Magnetic recording and reproducing system. John R. Anderson and Arthur C. Keller. **25:** 357—1953
Magnetic recording and reproduction. Arthur C. Blaney and Dorothy L. Blaney. **25:** 594—1953
Magnetic recording apparatus. Hugh H. Davis. **25:** 593—1953
Magnetic recording medium. Harold T. Faus. **25:** 173—1953
Magnetic sound record. Theodore H. Mann and Theodore G. Mann. **25:** 1032—1953
Magnetic tape sound recording and reproducing apparatus. Philip Bodley Scott. **25:** 1032—1953
Magnetic transducer. Virgil M. Grantham. **25:** 1033—1953
Manufacturing sound record. Gilbert Faraday Dutton. **25:** 1033—1953
Method of making magnetic recording heads. Marvin Camras. **25:** 593—1953
Method of manufacturing a magnetic recording medium by electro-deposition. Paschal P. Zapponi. **25:** 1033—1953
Recording wire. Harold W. Cobb. **25:** 174—1953
Reeling system for reelable magnetic records. Earl E. Masterson. **25:** 1033—1953
Resilient mount for magnetic heads. Marvin Camras. **25:** 594—1953
Safety device for preventing accidental erasing or double recording on magnetic record tape. Herman S. Heller. **25:** 357—1953
Wire recorder. Colin B. Dale. **25:** 1032—1953
Wire recording and erasing means. Walter C. Howey. **25:** 594—1953

5.17 Telephone, Telephone Receivers

ABSTRACTS
Automatic recognition of phonetic elements in speech. K. H. Davis. **25:** 832—1953
Improvements in the vocoder. R. L. Miller. **25:** 832—1953
Narrow band speech transmission system employing the recognition of phonetic elements. Homer Dudley and K. H. Davis. **25:** 831—1953
Selective compression of speech sounds. Caldwell P. Smith. **25:** 832—1953
Zero crossing intervals of a sine wave in noise. F. Mansfield Young and James C. Grace. **25:** 832—1953

PATENTS
Ear pad for earpieces. Sydney K. Herman. **25:** 815—1953
Electroacoustic converter. Sture Elis Karlsson and Stig Rune Lennart Skog. **25:** 595—1953
Electromagnetic vibratory device. James S. P. Roberton. **25:** 594—1953
Intercommunicating apparatus. Richard H. Campbell. **25:** 1033—1953
Loud-speaking telephone arrangement. Kenneth Eric Latimer. **25:** 1033—1953
Sound translating device arranged to eliminate extraneous sound. Alfred H. Kettler. **25:** 175—1953
Telephone handset. Randall B. Baker. **25:** 357—1953
Telephone receiver holder. Ernest Tullis. **25:** 175—1953
Telephone receiving device for two listeners. Roger A. B. Heap. **25:** 815—1953

5.18 Transducing Principles and Structures. Thermophones (see also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t)

PAPERS
Axially symmetric vibrations of a finite isotropic disk. III. Ram Ratan Aggarwal. **25:** 533—1953
Barium titanate admittance-temperature characteristics. A. L. Lane. **25:** 873—1953
Broad band directional barium titanate transducers. Leon Camp. **25:** 297—1953
Design techniques for a high frequency transducer with a wide-beam searchlight pattern. A. L. Lane. **25:** 697—1953
Electromechanical response and dielectric loss of pre-polarized barium titanate under maintained electric bias. Part I. H. G. Baerwald and D. A. Berlincourt. **25:** 703—1953
Graphical aids in interpreting the performance of crystal transducers. Walter G. Cady. **25:** 687—1953
Measurements on nonreciprocity in an electromechanical system. L. J. Black and H. J. Scott. **25:** 1137—1953
Theoretical sensitivity of three types of rectangular bimorph transducers. Edward G. Thurston. **25:** 870—1953
Transducers for producing ultrasonic waves. Oskar Mattiat. **25:** 291—1953

LETTERS TO THE EDITOR
Crystal acoustic arrays. W. Welkowitz. **25**: 336—1953
Rectifying property of polarized barium titanate. Donald L. Waidelich. **25**: 796—1953
Temperature invariant impedance point in the frequency response of circular barium titanate transducers. T. F. Hueter. **25**: 152—1953
ABSTRACTS
Barium titanate admittance-temperature characteristics. A. L. Lane. **25**: 181—1953
Electro-acoustic sensitivity of cylindrical ceramic tubes. R. A. Langevin. **25**: 181—1953
Electrokinetic low pressure detectors. Robert G. Packard. **25**: 181—1953
Low frequency temperature coefficient barium titanate ceramics which are stable with time. W. P. Mason. **25**: 833—1953
Phenomenological theory of ferroelectric ceramics. Hans G. Baerwald. **25**: 834—1953
Theoretical sensitivity of three types of rectangular bimorph transducers. Edward G. Thurston. **25**: 828—1953
PATENTS
Device for converting electrical energy into mechanical oscillation energy. Gerard Heinrich Jonker. **25**: 595—1953
Electrokinetic transducing method and apparatus. Milton Williams. **25**: 815—1953
Electromechanical transducer. Warren P. Mason. **25**: 358—1953
Electromechanical transducer. Alfred L. W. Williams. **25**: 595—1953
Method of growing a crystal. Lawrence B. Chambers. **25**: 358—1953
Piezoelectric transducer with push-pull and feedback circuit. John P. Arndt, Jr. **25**: 175—1953
Preparation of microphonic carbon. Clifford E. Mitchell. **25**: 595—1953
Transducer. Glenn N. Howatt. **25**: 815—1953
Transducer. Edward O. Johnson. **25**: 357—1953
Transducer. William M. Webster, Jr. **25**: 357—1953
Transducer and device employing the same. Louis D. Statham and Gifford E. White. **25**: 175—1953
Transducer and method of making the same. William H. Janssen. **25**: 596—1953
Transducer element and method of making same. Glenn N. Howatt. **25**: 595—1953
Transducing device having an electro-mechanically responsive dielectric element. Hans Jaffe. **25**: 595—1953
Transducing system. Walter L. Bond. **25**: 176—1953
Variable resistance pickup element. Marvin B. Luke. **25**: 175—1953

5.19 Tuning Forks

SUBTITLES
Tuning forks of lead. Paul J. Ernst and Phyllis Zayon. **25**: 153—1953
PATENTS
Mechanical vibration system. Kurt Ehrat and Vladimir Milliquet. **25**: 1033—1953
Tuning fork. Aaron Roth. **25**: 596—1953
Tuning fork. Austin N. Stanton. **25**: 596—1953
Tuning fork driver. Austin N. Stanton. **25**: 596—1953
Tuning fork with simultaneous multiple frequencies. Remy Joseph Marie Cecile Langloys. **25**: 1034—1953

5.21 Vibration Devices. Devices for Generating or Damping Vibrations (see also 2.11 and 5.9), see also 2.8, 4.5, 9.6, 10.3, 13.11, 13.11n, and 13.11t

PAPERS
Equivalent network representations for solid and mercury delay lines. S. Dairiki, T. E. Lawrence, and R. A. Mapleton. **25**: 841—1953
Vibrating plate viscometer. J. G. Woodward. **25**: 147—1953
ABSTRACTS
Audiofrequency attenuation of vibration isolation methods. R. W. Samsel and R. Plunkett. **25**: 831—1953
PATENTS
Electrical appliance for producing oscillations or vibrations for laundry purposes. Karl Volk, Eugen Holzbaur, and Ernst Klemm. **25**: 1034—1953
Electrodynamic reciprocation apparatus. Philip C. Efromson and Robert C. Lewis. **25**: 176—1953
Inertia type vibratory pick-up. James A. Flint. **25**: 176—1953
Torsional vibration pickup. Robert H. Beadle. **25**: 596—1953
Vibration measuring device. Joseph J. Boyd and Flood Everett Reed. **25**: 358—1953

6. Musical Instruments and Music

6.1 General, Unclassified

PAPERS
New integral ratio chromatic scale. Theodore E. Simonton. **25**: 1167—1953
Scale for specifying frequency levels in octaves and semitones. Parry Moon. **25**: 506—1953
SUBTITLES
Midwestern symposium on musical acoustics, Cincinnati, February 18th, 1953. **25**: 576—1953
Slide rule for the visualization of the microstructure of musical scales. Parry Moon. **25**: 514—1953
PATENTS
Device for teaching time and rhythm. Philip D. Moore and Joseph F. Williams. **25**: 597—1953
Indicating mechanism. Mortimer L. Clopton. **25**: 176—1953
Megaphone for wind instruments. Leonard L. Gilcrease. **25**: 596—1953
Musical instrument. Virgil R. Kimple. **25**: 596—1953
Musical instrument for vocal amplifications. Leslie W. Kerner. **25**: 596—1953
Musical pegboard. Paul G. Smith. **25**: 815—1953
Slide rule. Joseph Telasco. **25**: 176—1953
BOOK REVIEWS
Klangwelt unter der lupe (The world of sound under a magnifying glass). Fritz Winckel. (Reviewed by Arnold M. Small). **25**: 802—1953
Tuning and temperament. A historical survey. J. Murray Barbour. (Reviewed by Wilbour T. Bartholomew). **25**: 1020—1953

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

PATENTS
Cymbal. Avedis A. Zildjian. **25**: 597—1953
Disk operated electric player for carillons. Anthony Marra. **25**: 176—1953
Mechanically driven musical instrument. Edward Fraysur. **25**: 1034—1953
Musical saw. Charles G. Carter. **25**: 597—1953

6.3 Brass Wind Instruments (lip vibrated)

PAPERS
Acoustical properties of trumpets. Juichi Igarashi and Masaru Koyasu. **25**: 122—1953
PATENTS
Brass instrument cone-type mute. Pierre Daoust. **25**: 815—1953
Cup mouthpiece for musical instruments. John W. Cauffman. **25**: 176—1953
Microphone pick-up enclosure. Daniel W. Martin. **25**: 597—1953
Musical wind instrument. Cosimo Lisi and Ugo Casaccia. **25**: 358—1953
Portamento valve for brass wind instruments. Anton Solarz. **25**: 358—1953

Trombone balancer. Thomas H. Ebbert. 25: 597—1953
Valve for wind instruments. Fred N. Meyers. 25: 597—1953

6.4 Drums and Other Membranophonic Instruments

PATENTS

Adjustable pressure ring for drums. James Somerville. 25: 359—1953
Combination hard and soft bass drum beater ball. Gordon F. Heiderich and Charles Tappan. 25: 816—1953
Drum and cymbal beating device. Otto R. Christian. 25: 816—1953
Drum beater. John R. Ramsey. 25: 359—1953
Drum tuning device. Delbert E. Hull. 25: 359—1953
Kettledrum. Saul Goodman. 25: 816—1953
Kettledrum. Oskar Murbach. 25: 816—1953
Multipurpose rhythm device. Everett H. W. Clayton. 25: 816—1953
Percussion musical instrument. Charles William Percy. 25: 358—1953
Snare structure for drums. William F. Ludwig and Fred F. Kiemle. 25: 358—1953

6.5 Pipe Organs

PAPERS

Characteristics of jet-edge-resonator whistles. W. L. Nyborg, C. L. Woodbridge, and H. K. Schilling. 25: 138—1953

PATENTS

Multiple spring anchor. Victor I. Zuck. 25: 177—1953

6.6 Pianos and Other Keyboard Stringed Instruments

ABSTRACTS

Effects of music hall acoustics upon grand piano tone. Daniel W. Martin. 25: 183—1953

PATENTS

Mechanism for teaching the piano. Joseph H. Williams. 25: 598—1953
Keyboard. Oskar Heim. 25: 597—1953
Piano action. Sidney C. Shill. 25: 816—1953
Piano construction. Hal G. Nickel. 25: 177—1953
Piano keyboard. John Robbins. 25: 1034—1953

6.7 Violin Family. Stringed Instruments Except Keyboard Type

PAPERS

Recent work on violins. F. A. Saunders. 25: 491—1953

PATENTS

Bow frog with improved hair clamping means. Adam P. Lesinsky. 25: 359—1953
Bridge for bass violins. Sebastiano Melita. 25: 816—1953
Bridges for stringed musical instruments. Mario Maccaferri. 25: 816—1953
Capotasto. Grover C. Haffner. 25: 359—1953
Guitar damper. George Van Eps. 25: 817—1953
Key head for stringed musical instruments. Ferris A. Hawy 25: 816—1953
Musical instrument bow. Martin Nebel. 25: 817—1953
Musical instrument construction. George A. Finder. 25: 1034—1953
String instrument. Ferdinand Machalek. 25: 598—1953
Stringed instrument. Matthew Elton Nixon. 25: 816—1953
Stringed musical instrument. John B. Cousineau. 25: 359—1953

6.8 Wood Winds

PAPERS

Characteristics of jet-edge-resonator whistles. W. L. Nyborg, C. L. Woodbridge, and H. K. Schilling. 25: 138—1953

PATENTS

Clarinet. Oscar E. Christensen. 25: 598—1953
Cylindrical pipe woodwind instrument. Williams H. Stubbins. 25: 598—1953
Dual tone reed horn. Harry Hahn. 25: 1034—1953
Finger guide for clarinets. Curtis E. Hansen. 25: 600—1953
Key pad for wind instruments. Fred M. Schoemann. 25: 599—1953
Mouthpiece for musical instruments. Edward M. Dillon. 25: 599—1953
Mouthpiece for sound-producing devices. Victor T. Hoeflich. 25: 1035–1953
Mouthpiece for woodwind instrument. Harry Chance. 25: 599—1953
Musical instrument. Harlow B. Grow. 25: 598—1953
Offset auxiliary high F key for saxophones. Jay Arnold. 25: 598—1953
Saxophone. William S. Bullock. 25: 600—1953
Saxophone. Floyd E. Comer. 25: 600—1953
Saxophone. Hector Sommaruga. 25: 600—1953
Saxophone shield. Hugh W. Loney. 25: 600—1953
Slide cap. George Crescenzi. 25: 1034—1953
Slide flute. Robert W. Lawrence. 25: 599—1953
Stop pad for wind instruments. James A. Collis. 25: 599—1953
Tone amplifier for musical instruments. Albert De Luca. 25: 599—1953
Valve action mechanism for wind instruments. Fred N. Meyers. 25: 599—1953
Valve seat refacer for saxophones and the like. Nicholas P. D'Allessandro. 25: 1035—1953
Volume controlled saxophone mouthpiece. Carl D. Berry. 25: 598—1953
Wind instrument and key mounting for the same. Earl O. Sylvester. 25: 600—1953
Wind musical instrument. James Somerville. 25: 599—1953
Woodwind instrument. Hugh W. Loney. 25: 599—1953
Woodwind musical instrument. Hugh W. Loney. 25: 1035—1953

6.9 Electrical Musical Instruments

ABSTRACTS

Electronic organ installation for the 1952 presidential nominating conventions. Earle L. Kent. 25: 825—1953

PATENTS

Acoustical appliance. Kenneth J. Bailey. 25: 600—1953
Action for key-operated musical instruments of percussion type. Frans van den Bergh. 25: 177—1953
Apparatus for imposing vibrato on sound. Donald J. Leslie. 25: 817—1953
Apparatus for imposing vibrato on sound. Donald J. Leslie. 25: 817—1953
Chime system using harmonically tuned chimes. Paul H. Rowe. 25: 600—1953
Combination setter for organs. Earle L. Kent. 25: 601—1953
Electric organ. William Hakkarinen. 25: 177—1953
Electrical musical instrument. Leslie Edwin Alexander Bourn. 25: 359—1953
Electrical musical instrument. Pierre P. Pattyn. 25: 359—1953
Electronic musical instrument. Merlin Davis. 25: 178—1953
Individual magnet adjustable pickup. Harry De Armond. 25: 360—1953
Keyboard construction. Leland B. Greenleaf and Earnest F. Swanson. 25: 600—1953
Keyboard for musical instruments and keys therefor. Nelson J. Jewett. 25: 177—1953
Light-controlled musical instrument. Marcel Stanislas Ducout. 25: 178—1953
Magnetic brake for tremolos. Carl W. Larson. 25: 360—1953
Musical instrument. Jacob T. Kunz. 25: 359—1953
Musical instrument. Jacob T. Kunz. 25: 817—1953
Musical sound generating device. Maurice Martenot. 25: 600—1953
Organ chime control. Francis M. Schmidt. 25: 177—1953
Organ key loading device. George H. Hadden. 25: 360—1953

Organ reed construction. Lamar E. Hayslett. **25**: 177—1953
Organ-stop switching circuit. Victor I. Zuck. **25**: 178—1953
Pedal keyboard. Melvin H. French. **25**: 817—1953

6.10 Reed Organs. Accordions. Harmonicas

PATENTS

Apparatus for and method of testing musical reeds. Paul Weathers and George E. Chamberlin. **25**: 601—1953
Ballasted reed for musical instruments. René Seybold. **25**: 178—1953
Child's accordion. David Rosenheim. **25**: 178—1953
Child's musical instrument. Julian A. Links. **25**: 178—1953
Child's toy harmonica. Pascal A. La Grutta. **25**: 601—1953
Harmonica. Anthony La Paglia. **25**: 360—1953
Key assembly for musical instruments. Emil J. Ens. **25**: 360–1953
Mouth organ with fingering selector. Joseph Lederfine. **25**: 601—1953
Musical instrument. Adolph C. Hugin. **25**: 178—1953
Musical instrument. Adolph C. Hugin. **25**: 178—1953
Organ or other toy with equalized pressure supply. James Emery Nash. **25**: 178—1953
Reed for wind instruments. Anthony Montenare. **25**: 818—1953
Reed operated musical instrument. Charles E. Wetzler. **25**: 360—1953

7. Noise

7.1 General, Unclassified

PAPERS

Aircraft noise problem. Richard H. Bolt. **25**: 363—1953
Masking of speech by bands of noise. I. J. Hirsh and W. D. Bowman. **25**: 1175—1953
Measurement of noise with the sound spectrograph. Gordon E. Peterson and Gordon Raisbeck. **25**: 1157—1953
Theory of noise in continuous media. Carl Eckart. **25**: 195—1953

ABSTRACTS

Bio- and psycho-acoustic criteria for noise control. **25**: 828—1953
Economic factors involved in the design of acoustical components of test cells. C. J. Hemond and R. D. Lemmerman. **25**: 831—1953
Materials and structures problems in noise control. Richard D. Lemmerman. **25**: 184—1953
Measurements of turbulence noise radiated by small jets. R. Lee and H. M. Fitzpatrick. **25**: 186—1953
Neighborhood reaction to noise: a survey and correlation of case histories. K. N. Stevens, W. A. Rosenblith, and R. H. Bolt. **25**: 833—1953
Noise control measures for test installations. H. C. Hardy. **25**: 183—1953
Some typical problems encountered in practical noise control work. Martin Hirschorn. **25**: 185—1953
Sound radiation patterns of gas turbine exhaust stacks. R. J. Wells and B. E. Crocker. **25**: 184—1953
Use of temperature to describe random noise fields. R. Clark Jones. **25**: 182—1953
Zero crossing intervals of a sine wave in noise. F. Mansfield Young and James C. Grace. **25**: 832—1953

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Noise field near a reflecting plane. Carl Eckart. **25**: 198—1953
Radiation of noise by a vibrating plane. Carl Eckart. **25**: 198—1953
Special summer program at Massachusetts Institute of Technology on noise reduction, August 24–September 4, 1953. **25**: 341—1953

BOOK REVIEWS

Physique et technique du bruit. A. Moles. (Reviewed by Robert W. Young). **25**: 341—1953

7.2 Annoyance

ABSTRACTS

Neighborhood reaction to noise: a survey and correlation of case histories. K. N. Stevens, W. A. Rosenblith, and R. H. Bolt. **25**: 833—1953

7.5 Frequency Analyses of Noise

PAPERS

Physical characteristics of aircraft noise sources. **25**: 367—1953

SUBTITLES

Typical propeller noise spectrums. Arthur A. Regier and Harvey H. Hubbard. **25**: 396—1953

7.6 Noise in Building (see also 2.2)

ABSTRACTS

On residential noise: plumbing and aircraft. Robert B. Watson. **25**: 185—1953

7.7 Machinery Noise. Mufflers. Noise Silencers

PAPERS

Aircraft engine noise control as viewed by the engine manufacturer. Donald M. Hazard. **25**: 412—1953
Aircraft noise problem. Richard H. Bolt. **25**: 363—1953
Apparatus and procedures for predicting ventilation system noise. L. L. Beranek, J. L. Reynolds, and K. E. Wilson. **25**: 313—1953
Comparison between model study tests and field measurements on an aircraft test-cell silencer. D. B. Callaway and R. D. Lemmerman. **25**: 429—1953
Experimental studies of jet noise. H. H. Hubbard and L. W. Lassiter. **25**: 381—1953
Materials and structures problems in aircraft noise control. Richard D. Lemmerman. **25**: 438—1953
Noise characteristics of pulse-jet engines. Paul S. Veneklasen. **25**: 378—1953
Noise control for ground operation of the F-89 airplane. Paul S. Veneklasen. **25**: 417—1953
Noise control measures for jet engine test installations. Howard C. Hardy. **25**: 423—1953
Noise of choked jets. Alan Powell. **25**: 385—1953
Noise of ventilating fans. Clifford F. Peistrup and John E. Wesler. **25**: 322—1953
On noise of aerodynamic origin. Osman K. Mawardi and Ira Dyer. **25**: 389—1953
Physical characteristics of aircraft noise sources. H. E. von Gierke. **25**: 367—1953
Practical noise reduction treatment for diesel engines. James E. Ancell. **25**: 1163—1953
Sound radiation patterns of gas turbine exhaust stacks. R. J. Wells and B. E. Crocker. **25**: 433—1953
Status of research on propeller noise and its reduction. Arthur A. Regier and Harvey H. Hubbard. **25**: 395—1953
Symposium on aircraft noise. San Diego, Cal., November 13–15, 1952. **25**: 363—1953

ABSTRACTS

Acoustic behavior of induction motors. P. L. Alger. **25**: 831—1953
Aerodynamic noise in wind tunnel diffusers. Osman K. Mawardi. **25**: 193—1953
Aircraft engine noise control as viewed by the engine manufacturer. Donald M. Hazard. **25**: 184—1953
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Dimensional analysis of turbo jet noise data. Ira Dyer. **25**: 193—1953
Experimental studies of jet noise. Harvey H. Hubbard and L. W. Lassiter. **25**: 184—1953
Limits on airborne noise in naval shipboard spaces. M. Strasberg. **25**: 188—1953
Method for measuring noise of ventilating fans. J. L. Reynolds, K. E. Wilson, Jr., and L. L. Beranek. **25**: 185—1953

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7.8 Noise Generators (see also 13.9 Noise in Water. Ship Noise. Biological Noises)

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8. Standards

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9.6 Instruments Relating to Speech and Singing

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9.7 Speech Pitch
PATENTS
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9.8 Speech Power. Singing Voice Power
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9.10 Phonetics
PAPERS
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10. Ultrasonics (Supersonics)

10.1 General, Unclassified
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PAPERS
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PAPERS
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ABSTRACTS
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PAPERS
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10.6 Solids. Ultrasonic Velocities, Dispersion, and Absorption
PAPERS
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11. Waves and Vibrations (see also 13)

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11.2 Diffraction. Interference. Scattering. Reflection. Echoes. Standing Waves

PAPERS
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Diffraction patterns for solid delay lines. Robert A. Mapleton. **25**: 516—1953
On radiation and scattering from small cylinders. John W. Miles. **25**: 1087—1953
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Scattering of sound from the sea surface. Carl Eckart. **25**: 566—1953
Scattering of sound in a turbulent medium. Robert H. Kraichnan. **25**: 1096—1953
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ABSTRACTS
Backward scattering of sound in a fluid from the boundary of a granular medium. A. W. Nolle. **25**: 189—1953
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Seismic model study. E. T. Howes, L. H. Tejada-Flores, and L. Randolph. **25**: 180—1953
Some observations on traveling waves from explosive sources. P. L. Lawrence and M. B. Dobrin. **25**: 180—1953
Some relations between seismology and acoustics. Hugo Benioff. **25**: 180—1953
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11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames (see also 5.14 and 10.7)

PAPERS
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Acoustic streaming at low Reynolds numbers. J. Milton Andres and Uno Ingard. **25**: 932—1953
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Acoustic streaming equations: Laws of rotational motion for fluid elements. Wesley L. Nyborg. **25**: 938—1953
Acoustic streaming near a small obstacle. Peter J. Westervelt. **25**: 1123—1953
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Theory of steady rotational flow generated by a sound field. Peter J. Westervelt. **25**: 60—1953

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11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect (see also 10.4, 10.5, 10.6. 13.2, and 13.3)

PAPERS

Abnormal sound propagation over the southwestern United States. C. T. Johnson and F. E. Hale. **25**: 642—1953

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Wave propagation in a randomly inhomogeneous medium. I. David Mintzer. **25**: 922—1953

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